



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,702	02/18/2004	Robert Colin Pugh	P66775US1	8963
136	7590	04/17/2006	EXAMINER	
JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004			MITCHELL, KATHERINE W	
		ART UNIT		PAPER NUMBER
				3677

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/779,702	PUGH ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Katherine W. Mitchell	3677	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 February 2006.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 20-30 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 30 and 32-36 is/are allowed.
- 6) Claim(s) 20-29 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 07 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. 09/868,623.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) Notice of Informal Patent Application (PTO-152)
- 6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Revised Fig 18 is accepted and entered.
2. Applicant's statements that 12-14 are not prior art is accepted. The confusion was due to applicant's use of the description "conventional".

### ***Claim Objections***

3. Claim 30 is objected to because of the following informalities: Since all the dependent claims recite "an EKG drain structure", the independent claim should include "drain". Appropriate correction is required.
4. Since the specification is clear that --electrically conducting-- is what is meant by conducting, examiner has assumed this in all the claims. However, prior to any allowance, the claims should reflect --electrically conducting--, not merely conducting.
5. Claim 27, "then' should be --the--.
6. Claim 30 is not new, but is --(currently amended)--.
7. Regarding claim 32, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. Examiner assumes applicant intended a Markush group.

### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 20-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has at least one reinforcing core element defining an outer peripheral surface in claim 20, and thus its dependent claims 21-29. However, it is not clear whether this is the outer peripheral surface of the sheath or the substrate or the core element. Examiner assumes it is the outer peripheral surface of the core element that is defined, and since this is in direct contact with the substrate, it is also the sheath's outer peripheral surface and the substrate's.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 20, 22-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Oppitz USP 4678554.

Oppitz teaches an EKG geosynthetic {drain} structure comprising a geosynthetic sheath (net 39). There is at least one conducting element in direct contact with ground material substrates in col 1 lines 10-15 and 45-61. Fig 2, 6 and col 4 lines 44-col 5 line 51 and col 8 lines 30-68 disclose that the reinforcing core and sheath comprise geosynthetic material (A net made of polymers in the ground is inherently a geosynthetic) and that outer surface 75 (Fig 5) is conductive. The cathode 38 is in the

Art Unit: 3677

form of a net 39. Net 39 contains individual threads 73,74 of core materials embedded in conductive resin. Core materials inherently serve as reinforcing core, since they are made of materials which would reinforce, such as metal or carbon filaments or polyamides. The sheath is considered 75, which is conductive and surrounds and contacts the outer peripheral surface of said core element (80,81, 82,83 and 84 of Fig 6 are considered the core element). The net 39 is considered to form channels between each thread 74, 73 for drainage. Thus the outer edge comprises a channel where it meets the substrate. The conducting element 75 is in direct contact with the substrate.

**chan·nel**

**chan·nel** (chān'äl) noun

4. A trench, furrow, or groove.
5. A tubular passage for liquids; a conduit.
6. A course or passage through which something may move or be directed:<sup>1</sup>

Re claim 22: The sheath is a substantially closed or enclosing structure (Fig 4 shows 2 nets, 60 and 62, which together are considered the EKG structure and serve to contain the fill, considered the substrate core of ground material between them).

Re claim 23: Figs 5 and 6 show the core elements' outer surfaces in direct contact with the sheath over substantially their entire outer surfaces.

RE claim 24: Col 9 lines 56-col 10 line 20 teach that nutrients and moisture can flow through the net, thus the overall sheath is porous.

---

<sup>1</sup>Excerpted from *The American Heritage Dictionary of the English Language, Third Edition* Copyright © 1992 by Houghton Mifflin Company. Electronic version licensed from Lernout & Hauspie Speech Products N.V., further reproduction and distribution restricted in accordance with the Copyright Law of the United States. All rights reserved.

Re claims 25-26; Col 9 lines 1-30 teach metallic powders dispersed in a solid carrier. Col 1 lines 66-61 and col 5 lines 51-61 teach conducting polymers with filaments of conducting elements.

Re claim 27-28: Col 8 lines 38-68 teach that the sheath itself forms the conducting element, and that the EKG drain structure serves as an electrode in a drainage function.

Re claim 29: The method is taught in Col 8 lines 30-60.

12. Claims 20-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Jones et al., PCT WO95/21965, published 8/17/1995, the national stage entry of which is cited as USP 5980155.

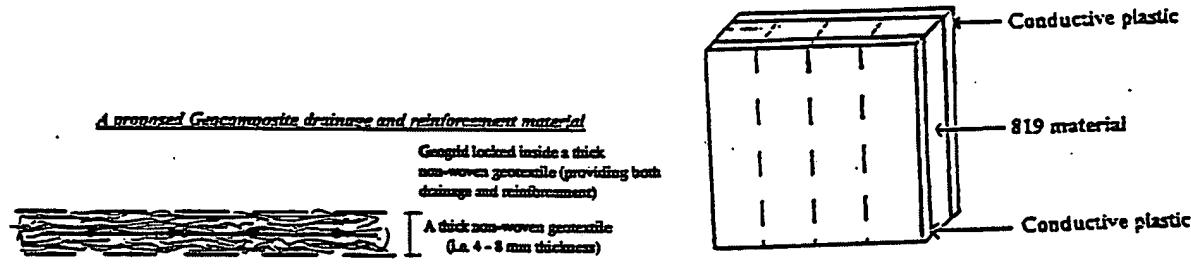


Fig. 4c

Fig. 13

Jones teaches an EKG drain structure comprising a composite geosynthetic liner with enclosed core element surrounded by a sheath, and a conducting element (conductive plastic, Fig 13) for direct contact with substrates of ground materials-- it is the outer layer. The reinforcing core element is 819. Note that Fig 4c shows the proposed structure for the 819 material, and it includes channels and voids. A sheath (conductive plastic) substantially surrounds the core and is in direct contact with the core outer surface, and the sheath is conductive, as described in the

Art Unit: 3677

abstract and Figures, and col 5 line 60 - col 7 line 30 (US), pg 10 line 20-page 14, line 15 (PCT). A possible conductive element is taught as metallic polypropylene (col 21, lines 1-3 US, pg 46, lines 8-9 PCT), or the stitched metal filament on the outer surface of the sheath as shown in numerous examples, including Fig 13. The sheath would be porous where the stitches poked though, per Fig 13. The mesh (Fig 4c) inherently forms drainage channels, (see broad definition above):

According to a yet further aspect of the invention there is therefore provided a geosynthetic having electrically conducting properties.

In a preferred aspect of the invention said electrically conducting geosynthetic incorporates or has applied thereto 25 an electrically conducting material.

Preferably said material is either woven into said geosynthetic or threaded through said geosynthetic.

Preferably further still said material is in the form of a filament or thread and may be single or multi-stranded. 30

More preferably still said thread or filament may comprise a composite yarn which yarn includes at least one electrically conducting element.

In yet a further preferred embodiment of the invention said composite geosynthetic comprises said materials, at 35 least one of which materials has electrically conducting properties.

Moreover, we have also found that our new geosynthetic, when made in part or whole from a material having electroosmotic properties, exhibits enhanced performance in that it expedites and augments the increase in shear strength of a cohesive soil by exploiting electroosmotic effects. 10 Specifically, we have found that the provision of reinforcement material such as a geogrid, which is electrically conductive, is desirable. The reinforcement material can be rendered electrically conductive by making the geogrid or elements of the geogrid electrically conductive. 15

In order to determine the potential of an electrically conducting geosynthetic to remove preselected species, for example, metals from solution, a number of laboratory tests have been conducted based upon the use of an established geosynthetic material. 20

The particular geosynthetic use was the 819 material manufactured by the Swedish company Engtex AB. It is composed of 100% polypropylene-an organic carbon derivative with excellent sorptive capabilities and which has previously exhibited high sorbant properties with a variety 25 of substances.

The laboratory tests were based upon the technique of

In the twelfth design a layer of 819 material (150 mm×150 mm) was sandwiched between two layers of conductive plastic sheeting each (150 mm×150 mm). This would comprise the cathodic component and was stitched, once again, with three rows of stainless steel stitching, FIG. 13.

Drainage is also an important consideration in a reinforced soil structure. If such a structure becomes water-<sup>10</sup>logged the properties of the fill are changed and the tensile forces in the reinforcing elements increase. It is known that geosynthetics can be used for the purpose of drainage. Indeed, geosynthetics can serve two important hydraulic functions relating to cross-plane flow (filtration) and <sup>15</sup>in-plane flow (in plane drainage). Less information is available about the properties of in-plane drainage than filtration. A drainage geosynthetic has voids (pores) and particles (filaments and fibres). Typically, the pore size bears a simple relationship to the particle size of the soil with which the <sup>20</sup>geosynthetic is to be used.

*Clearly use of a drainage geosynthetic with a cohesive*  
At least 2 electrodes are taught, with at least one as an EKG structure and with an electric field therebetween, per the examples and col 22 lines 4-16 US and page 11 and 23-24, PCT. Note that in an apparatus claim (Claim 28), the method of use is not germane to patentability as long as the referenced structure is CAPABLE OF meeting that use.

### ***Allowable Subject Matter***

13. Claims 30, 32-36 are allowed.

### ***Response to Arguments***

14. Applicant's arguments with respect to claims 20-29 have been considered but are moot in view of the new ground(s) of rejection.

15. Applicant's arguments, with respect to Wrigley have been fully considered and are persuasive. The rejection of claims 20-36 has been withdrawn.

16. Although moot, examiner notes that applicant did not make specific arguments regarding Jones, other than the claims were not taught "at least in the detail as now claimed" and the Jones did not teach the embodiment of claim 30. Examiner agrees with the argument regarding claim 30, and the rejection has been withdrawn, but

believes that even as amended, Jones teaches claims 20-29 as discussed above. Note that a core is merely a central portion, and a core as described would inherently reinforce against interior collapse, for example.

**core (kôr, kôr) noun**

2. *The central or innermost part: the hard elastic core of a baseball; a rod with a hollow core.*<sup>2</sup>

**Conclusion**

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
18. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).
19. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

---

<sup>2</sup>Excerpted from *The American Heritage Dictionary of the English Language, Third Edition* Copyright © 1992 by Houghton Mifflin Company. Electronic version licensed from Lernout & Hauspie Speech Products N.V., further reproduction and distribution restricted in accordance with the Copyright Law of the United States. All rights reserved.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine W. Mitchell whose telephone number is 571-272-7069. The examiner can normally be reached on Mon - Thurs 10 AM - 8 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, J. J. Swann can be reached on 571-272-7075. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

21. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Katherine W Mitchell  
Primary Examiner  
Art Unit 3677

Kwm  
4/13/2006



Approved  
OK foerder  
KMM  
4/12/06

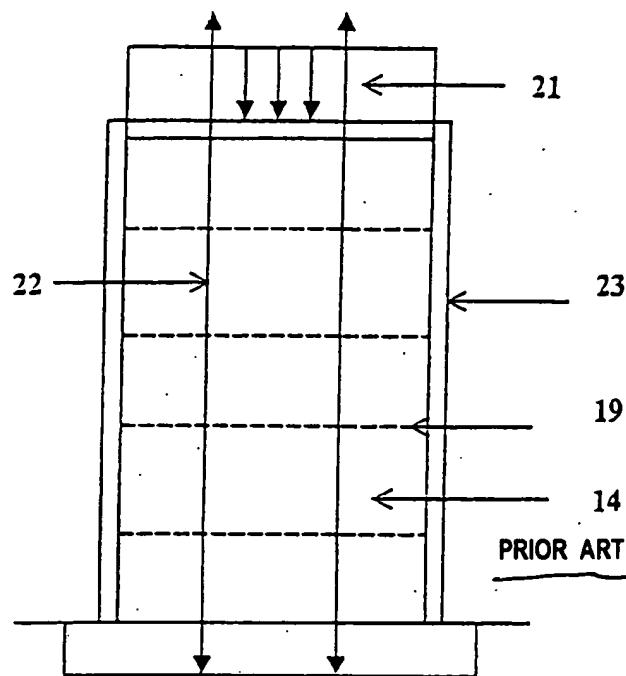


Fig 18

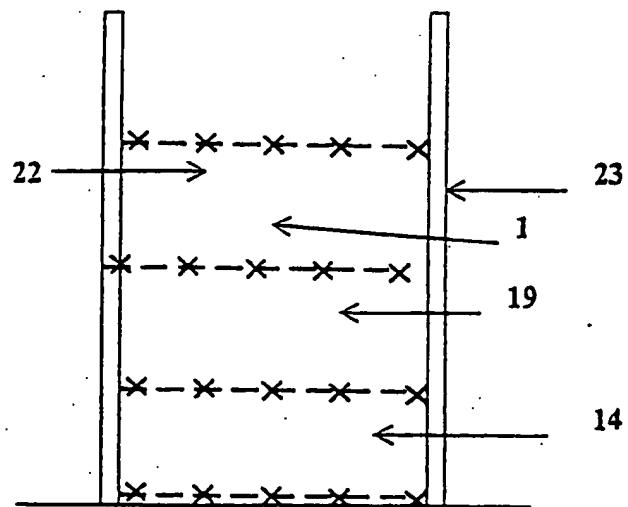


Fig 19